

Appl. No. 10/043,902

August 2, 2004

Reply to Office Action of February 2, 2004

### REMARKS

Reconsideration of the application is respectfully requested.

In the Office Action, all pending claims 76-95 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 5,264,795 ("Rider") in view of U.S. Patent No. 4,262,171 ("Schneider et al.").

To establish a prima facie case of obviousness, there must be some suggestion or motivation for modifying references. Rider discloses a locator apparatus for locating underground pipes or other devices using short distance communication methods through the earth. Rider also discloses that it uses carrier frequency for achieving the communication. There is no motivation in Rider to use any other frequency than the carrier frequency or a modulator other than a carrier frequency modulator. This is so because Rider is not concerned with communicating through the earth to the interior of a mine, which usually involves a long distance communication through the earth with minimum power and energy due to the explosion hazards inside the mines. Further, Rider is not concerned with the amount of energy used.

On the other hand, the single sideband transmission claimed in claims 76-95 uses considerably less energy than a carrier-modulated signal disclosed by Rider. In single sideband transmission, the carrier is not transmitted but is reconstructed in the receiver. Thus, Rider does not disclose, suggest, or teach using single sideband transmission through the earth, for example, to reduce the amount of needed energy.

Schneider et al. appears to disclose a telephone system that has hardwired telephones. Although Schneider et al. discloses that its telephone system can be used

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inside the mines, Schneider et al. does not disclose, suggest, or teach transmitting energy through the earth, a medium that retards the propagation of the electromagnetic signal; nor does Schneider et al. disclose, suggest, or teach wireless communication for communicating between surface and underground areas of the earth. Still yet, Schneider et al. does not disclose, suggest, or teach transmitting in low energy level, for instance, to prevent an explosion in a methane and coal dust atmosphere.


For at least the foregoing reason, Rider and Schneider et al., alone or in combination, do not disclose, suggest, or teach claims 76-95.

In addition, Rider and Schneider et al., alone or in combination, do not disclose, suggest, or teach additional elements claimed in dependent claims. For instance, Rider and Schneider et al., alone or in combination, do not disclose, suggest, or teach a comb filter as claimed in claims 91 and 92.

This communication is believed to be fully responsive to the Office Action and every effort has been made to place the application in condition for allowance. If a telephone interview would be of assistance in advancing prosecution of the subject application, the Examiner is requested to telephone the undersigned attorney at the number provided below.

Date: August 2, 2004

Respectfully submitted,



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